CLAIMS:

1. A nuclear magnetic resonance imaging apparatus for removing wraparound artifacts from an image produced from signals received by a plurality of coils based on the difference in sensitivity distribution among said plurality of coils, said apparatus comprising:

a phase correction processing device for conducting phase correction processing on the signals received by said plurality of coils based on a corrective signal received by one of said plurality of coils while applying no gradient magnetic field in a phase encoding direction; and

a removing device for removing wraparound artifacts in said image based on the signals received by said plurality of coils and subjected to said phase correction processing by said phase correction processing device, and on the difference in sensitivity distribution among said plurality of coils.

2. The nuclear magnetic resonance imaging apparatus of claim 1, wherein:

said apparatus further comprises Fourier transformation processing device for conducting Fourier transformation processing in the phase encoding direction, and

said phase correction processing device generates phase correction coefficients based on the result obtained by conducting, by said Fourier transformation processing device, Fourier-transformation processing on the corrective signal received by one of said plurality of coils while applying no gradient magnetic field in the phase encoding direction; and based on said phase correction coefficients, conducts the phase correction processing on the signals received by said plurality of coils with reduced scan steps and with phase encoding, and subjected to the Fourier transformation processing by said Fourier transformation processing device.

3. The nuclear magnetic resonance imaging apparatus of claim 1, wherein:

said phase correction device selects one of said plurality of coils based on the signal intensities of said plurality of coils, and based on said corrective signal received by said selected coil, conducts the phase correction processing on the signals received by said plurality of coils.

4. The nuclear magnetic resonance imaging apparatus of claim 1, wherein:

said phase correction device selects one of said plurality of coils based on the sensitivity distributions of said plurality of coils, and based on said corrective signal received by said selected coil, conducts the phase correction processing on the signals received by said plurality of coils.

5. The nuclear magnetic resonance imaging apparatus of claim 1, wherein:

said phase correction device selects one of said plurality of coils based on two-dimensional integral values in respective signal intensity images of said plurality of coils, and based on said corrective signal received by said selected coil, conducts the phase correction processing on the signals received by said plurality of coils.

6. The nuclear magnetic resonance imaging apparatus of claim 1, wherein:

said apparatus further comprises gradient magnetic field generating device for generating gradient magnetic fields in a readout direction, a frequency encoding direction, and a phase encoding direction, and

said phase correction device conducts the phase correction processing on the signals received by said plurality of coils based on said corrective signal received by one of said plurality of coils while applying no gradient magnetic field at least in said phase encoding direction by said gradient magnetic field generating device.

7. The nuclear magnetic resonance imaging apparatus of claim 6, wherein:

said apparatus further comprises pulse generating device for applying 90°

and 180° pulses for exciting nuclear magnetization;

said gradient magnetic field generating device applies a gradient magnetic field in said readout direction with the polarity consecutively inverted a plurality of times; and

said correcting device removes wraparound artifacts in an image produced based on the signals received by said plurality of coils while applying the 90° and 180° pulses by said pulse generating device, and applying the gradient magnetic field in said readout direction with the polarity consecutively inverted a plurality of times by said gradient magnetic field generating device.

8. The nuclear magnetic resonance imaging apparatus of claim 6, wherein:

said gradient magnetic field generating device applies a diffusion-weighted gradient magnetic field before and after said 180° pulse applied by said pulse generating device, and applies said gradient magnetic field in said readout direction with the polarity consecutively inverted; and

said correcting device removes wraparound artifacts in an image produced based on the signals received by said plurality of coils while applying said diffusion-weighted gradient magnetic field and applying said gradient magnetic field in said readout direction with the polarity consecutively inverted by said gradient magnetic field generating device.

9. A nuclear magnetic resonance imaging apparatus for removing wraparound artifacts from an image produced from signals received by a plurality of coils based on the difference in sensitivity distribution among said plurality of coils, said apparatus comprising:

a gradient magnetic field generating device for generating gradient magnetic fields in a readout direction, a frequency encoding direction and a phase encoding direction;

a pulse generating device for applying 90° and 180° pulses for exciting nuclear magnetization;

a phase correcting device for, based on one of navigator signals received by one of said coils while applying no gradient magnetic field in said phase encoding direction and applying said gradient magnetic field in said readout direction by said gradient magnetic field generating device within the same excitation period, conducting phase correction processing on the signals received by said plurality of coils while applying a gradient magnetic field in said phase encoding direction and applying a gradient magnetic field in said readout direction with the polarity consecutively inverted by said gradient magnetic field generating device within an excitation period; and

a removing device for removing wraparound artifacts in said image based on the signals received by said plurality of coils and subjected to said phase correction processing by said phase correction processing device, and on the difference in sensitivity distribution among said plurality of coils.

10. A nuclear magnetic resonance imaging method for removing wraparound artifacts from an image produced from signals received by a plurality of coils based on the difference in sensitivity distribution among said plurality of coils, said method comprising:

a first step of conducting phase correction processing on the signals received by said plurality of coils based on a corrective signal received by one of said plurality of coils while applying no gradient magnetic field in a phase encoding direction; and

a second step of removing wraparound artifacts in said image based on the signals received by said plurality of coils and subjected to said phase correction processing by said first step, and on the difference in sensitivity distribution among said plurality of coils.

11. The nuclear magnetic resonance imaging method of claim 10, wherein:

said first step generates phase correction coefficients based on the result obtained by conducting Fourier transformation processing on the corrective

signal received by one of said plurality of coils while applying no gradient magnetic field in the phase encoding direction; and based on said phase correction coefficients, conducts the phase correction processing on the result of the Fourier transformation processing on the signals received by said plurality of coils with scan step skipping and with phase encoding.

12. The nuclear magnetic resonance imaging method of claim 10, wherein:

said first step selects one of said plurality of coils based on the signal intensities of said plurality of coils, and based on said corrective signal received by said selected coil, conducts the phase correction processing on the signals received by said plurality of coils.

13. The nuclear magnetic resonance imaging method of claim 10, wherein:

said first step selects one of said plurality of coils based on the sensitivity distributions of said plurality of coils, and based on the corrective signal received by said selected coil, conducts the phase correction processing on the signals received by said plurality of coils.

14. The nuclear magnetic resonance imaging method of claim 10, wherein:

said first step selects one of said plurality of coils based on two-dimensional integral values in respective signal intensity images of said plurality of coils, and based on said corrective signal received by said selected coil, conducts the phase correction processing on the signals received by said plurality of coils.

15. The nuclear magnetic resonance imaging method of claim 10, wherein:

said first step conducts the phase correction processing on the signals received by said plurality of coils based on said corrective signal received by one of said plurality of coils while applying no gradient magnetic field in the phase encoding direction.

16. The nuclear magnetic resonance imaging method of claim 10, wherein:

said second step removes wraparound artifacts in an image produced based on said signals received by said coils while exciting nuclear magnetization by 90° and 180° pulses, and applying the gradient magnetic field in the readout direction with the polarity consecutively inverted a plurality of times.

17. The nuclear magnetic resonance imaging method of claim 16, wherein:

said second step removes wraparound artifacts in an image produced based on the signals received by said plurality of coils while applying a diffusion-weighted gradient magnetic field before and after said 180° pulse, and applying the readout gradient magnetic field with the polarity inverted.

18. A nuclear magnetic resonance imaging method for removing wraparound artifacts from an image produced from signals received by a plurality of coils based on the difference in sensitivity distribution among said plurality of coils, said method comprising:

a first step of conducting phase correction processing on the signals received by said plurality of coils while applying a gradient magnetic field in a phase encoding direction and applying a gradient magnetic field in a readout direction with the polarity consecutively inverted within an excitation period, based on one of navigator signals received by one of said coils while applying no gradient magnetic field in said phase encoding direction and applying said gradient magnetic field in said readout direction within the same excitation period; and

a second step of removing wraparound artifacts in said image based on the signals received by said plurality of coils and subjected to said phase correction processing by said first step, and on the difference in sensitivity distribution among said plurality of coils.